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For: AN ASSOCIATIVE SEARCH ENGINE

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Bruce E. Garlick

**TRANSMITTAL LETTER**

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Dear Sir:

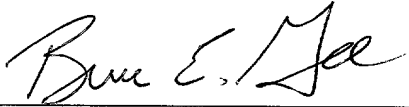
We are transmitting herewith for filing a regular patent application.

1. Enclosed you will find the following:
  - a. Specification (59 Pages);
  - b. Abstract (1 Page);
  - c. Formal Drawings (1 Sheet);
  - d. Unexecuted Declaration and Power of Attorney;
  - e. Return Postcard.

2. With respect to fees: No fees will be paid at this time.

Respectfully submitted,

Date: July 8, 1999

By:   
Bruce E. Garlick, Reg. 36,520

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**TITLE**

**AN ASSOCIATIVE SEARCH ENGINE**

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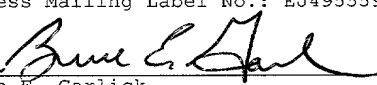
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**CERTIFICATE OF EXPRESS MAILING**

I hereby certify that this correspondence, which includes 59 pages of Specification (including 42 pages of claims), 1 page of Abstract and 1 sheet of Drawings, is being deposited with the United States Postal Service "Express Mail Post Office to Addressee" Service under 37 C.F.R. Sec. 1.10 addressed to: Box Patent Application, Assistant Commissioner for Patents, Washington, D.C. 20231, on July 8, 1999.

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Bruce E. Garlick

**TITLE:     AN ASSOCIATIVE SEARCH ENGINE**

## SPECIFICATION

**CROSS-REFERENCE TO RELATED APPLICATION**

The present application claims priority pursuant to 35 U.S.C. Sec. 120 to U.S. Regular Application Serial No. 08/798,747, filed February 13, 1997, pending, which is hereby incorporated herein by reference in its entirety.

## Background of The Invention

The invention generally relates to search engines and, in particular, to an associative search methodology, based on a contextual search engine, for retrieving related information.

The Internet provides an excellent vehicle for access to information about goods and services on a global basis.

In theory, anyone can access information about any product. In practice, the problem is one of finding the correct information. Many techniques for solving this problem are known, including: indexing systems such as Yahoo, graphical electronic malls, hall of malls, directories, and text search engines, such as OpenText.

These techniques and tools for searching and retrieving information, in their present form, can inundate the user with large amounts of unwanted material.

This later problem can be alleviated somewhat by enabling the user to provide search statements as a set of

criteria which are combined with logical operators, such as 'AND', 'OR' and 'NOT' operators. However, many problems still exist with this. One of them is that the user is left to his/her own imagination to try to think of all the alternative descriptions (i.e. keywords) of a product or service. As search engines and techniques become ever more powerful in the number and diversity of databases they can access, the amount of information which it is possible to present to a user can quickly become excessively large.

The problem or opportunity still remains to quickly find the relevant information for which the user is looking.

#### **Summary of the Invention**

It is an object of the present invention to provide a new and improved associative search methodology for retrieving related information.

The invention, therefore, according to a first broad aspect provides a method of providing advertisements to a user searching for desired information within a data network, comprising the steps of: receiving, from the user, a search request including a search argument corresponding to the desired information; searching, based upon the received search argument, a first database having data network related information to generate search results; correlating the received search argument to a particular advertisement in a second database having advertisement related information, and providing the search

results together with the particular advertisement to the user.

According to a second broad aspect, the invention provides a method of searching for desired information within a data network, comprising the steps of: receiving, from a user, a search request including a search argument corresponding to the desired information; searching, based upon the received search argument and user profile data, a database of information to generate a search result; and providing the search results to the user.

According to a third broad aspect, the invention provides a system for providing advertisements to a user searching for desired information within a data network, comprising: means for receiving, from the user, a search request including a search argument corresponding to the desired information; means for searching, based upon the received search argument, a first database having data network related information to generate search results; means for correlating the received search argument to a particular advertisement in a second database having advertisement related information; and means for providing the search results together with the particular advertisement to the user.

According to a fourth broad aspect, the invention provides a system for searching for desired information within a data network, comprising: means for receiving,

from a user, a search request including a search argument corresponding to the desired information; means for searching, based upon the received search argument and user profile data, a database of information to generate a search result; and means for providing the search results to the user.

Conventional search engines, for example OpenText, provide a basis on which the methodology according to this invention may be implemented. In a particular embodiment, the invention is manifested by an advertising system including an associative search engine that may be tied into and form an integral part of the conventional search engine. When an end user accesses the conventional search engine, the associative engine of the selling system examines the user's choices and search instructions, that have been input by the user, and formulates the necessary strategy and tactics to offer products that would appeal to the end user based on his/her inputs and choices up until that point in the search. Since the process is dynamic the strategy and tactics can be continually refined and the results presented to the end user in a predictive order and fashion that relates to that end user's past preferences (either for the immediate search underway or including all prior search data stored for that user) and a contextual database. This effectively provides unobtrusive, related and useful data and options to the end user who is

searching for information. The processor used for the advertising and selling mechanism can be a part of or interconnected with the search engine.

Some examples will illustrate how this invention can have high value to an end user. An end user's profile data may contain such information as the make, model and year of automobile he/she owns or leases. When tires are needed, the manufacturers recommended tire types and options may be considered as sort criteria provided within a contextual database. Another example relates to when airline reservations are being sought. All of a person's preferences, which today are normally sorted one by one through a travel agent, could be utilized by the advertising and selling mechanism to provide the informed response.

In addition to the search criterion, as users interacts with the advertising system, it will continue to compile preference data (e.g. a list of keywords) for each user.

All preferences, for example, can be left in a type of default mode or even presented to the user for him/her to edit and re-prioritize in order to look for diversity or alternatives. The system can detect exceptions and contradictions so that the end user can be shown immediately that some of the options would violate natural tendencies.

Some of the search patterns or preferences will be



keyed off of natural interests also such as: social, family, political, technological, geographical, environmental, educational and so on. Once these preferences are known, then an advertisement or a proposed customized product brochure can be prepared.

This invention is also enhanced by advances in technology occurring in the emerging ubiquitous data world, such as new software languages. One example is "Java". Java is an environment that can be exported to an end users platform to run an application which may include graphics, moving demonstrations, cartoon like explanations or even video. The Java like environment could be used to customize with more than name, it can be used to customize with detailed examples.

One other opportunity presented to service providers is the potential to create new and better ways to improve the environment presented to end users of various classes by remembering what was effective for a sale to occur. In this way, key elements of a presentation or search that have higher success can be put into a higher priority or category for further use and therefore more rapid development through even more intense feedback due to subsequent use.

While this invention can be integrated with traditional Internet search engines (such as Yahoo or Lycos), full advantage can be obtained by integrating the

invention with an Internet Access provider. An Internet Access Provider can maintain a more complete user database. Customers are localized, so individual databases will contain fewer users. This allows more database space to be allocated to each user. In addition, more detailed information can be maintained, such as geographical location, type of home computer system, and any additional information the user may choose to provide to the Internet Access Provider.

It is anticipated that the Java environment will develop so that it too will learn and adapt. As a user continues to stop presentations at certain points, scan, re-scan, look for further input at certain points, abort a negotiation and so on at certain points, then such points or logic routines could be avoided or alternatives considered. The present invention proposes such a dynamic and relational preferences methodology in order to more rapidly and more effectively couple a user's needs with product or service offerings.

It is also recognized that these techniques may be applied to an educational environment where, for example, a student may be able to have an environment that is aurally enhanced, another one that is visually enhanced, another one that is textually enhanced and yet another that is anecdotally as opposed to logically enhanced. There are many other opportunities due to different personal

proclivities, strengths, skills or disabilities.

### **Brief Description of the Drawings**

The invention will be better understood from the  
 5 following detailed description of an advertising machine  
 together with reference to the accompanying drawings, in  
 which:

Figure 1 is a schematic representation of the  
 advertising machine including an associative search engine;  
 10 and

Figure 2 is a schematic representation of the  
 advertising machine in combination with an Internet Access  
 Service provider.

### **Detailed Description**

Referring to Figure 1, shown is an advertising  
 machine, generally referenced by 10, together with a data  
 processing device 12 and a communications link 14 through  
 which the device 12 interacts with the advertising machine  
 20 10. The communications link 14 may be provided by a global  
 data network, typically the Internet, and the data  
 processing device 12 may be any conventional  
 hardware/software combination supporting functionality for  
 communications over the Internet. Examples of the data  
 25 processing device 12 include a personal computer (PC) or  
 Macintosh executing an appropriate browser application,

such as, Netscape Navigator which functions as an interface to the World Wide Web (WWW) of the Internet. Functionality provided by the advertising machine 10 may be implemented using an appropriately programmed conventional data processing server platform.

The advertising machine 10, in this particular embodiment, comprises a database search engine 16 and an associative search engine 18 which may access a database 20 having contextual data 22 and product data 24. The database search engine 18 is conventional technology, an example of which is the OpenText engine that provides searches based on subject, strings, boolean, text, etc. Such input search arguments may be received from an end user via the data processing device 12 and data link 14 and, accordingly, the database search engine 16 effects a search of the contextual data 22 in the database 20 and returns results of the search to the end user, as a page displayed on the device 12. The contextual database typically contains information relating to the Internet, for instance, keywords associated with respective WWW site locations.

The associative search engine 18, in accordance with the present invention, may contain rule based software algorithms or non-precise techniques, such as, fuzzy logic that can correlate a search argument derived from the user and changes in the argument during a single session, to

particular product data within the product database 24.  
 The associative search engine 18 selects the most logical  
 product from its available data 24 and then provides an  
 advertisement insert that is added to the end user's search  
 5 page, in an attempt to present the end user with the  
 product that is closest to the need as determined by the  
 associative search engine 18 of the selling machine 10.

In operation, for example, the process effected when  
 an end user at the device 12 accesses the advertising  
 10 machine 10 is as follows.

1) The end user device 12 sends a search request  
 outlining the search argument to the database search engine  
 16.

2) The search engine 16, having carried out a  
 15 traditional search of Internet related information in the  
 contextual data 22, passes the argument and results of the  
 its search to the associative search engine 18 which then  
 looks for a match in the product data 24 of the database  
 20. The associative search engine 18 may determine a  
 20 logical product fit to the initial search argument, or it  
 may create a logical tree analysis of possible product fits  
 and selects a probable best product for an advertisement  
 window to be displayed with the search results.

3) The associative engine 18 passes the data of  
 25 the selected product to the search engine 16 which in turn  
 provides the results of the search against the given

argument together with the initial product advertisement to the device 12 for displaying to the end user.

4) The end user refines his or her search by either clicking on a displayed result or refining their search through additional arguments or search criteria.

5) The associative search engine 18 and the database search engine 16 again work together in providing refined data as in (2) above. In the case of the end user clicking on (i.e., selecting) a specific search result, the associative search engine 18 further refines its logical tree strategy and selects the probable best fit product and generates an advertisement.

6) The end user search results advertisement window is continually updated on each selection or refinement using a technology such as Java providing the end user with a continually updated product advertisement that is considered to be most relevant (best fit) at that point in the search. In addition, failure of the end user to click on the advertisement is used as a criterion in the logical tree in providing the appropriate advertisement.

7) Once the end user clicks on (selects) the advertisement displayed on the device 12, an appropriate message is sent to the advertising machine 10 and, in particular, to the associative search engine 18 which may automatically connect the end user to the seller of the product, for instance, by forwarding the browser of the end

user device 12 to the WWW site address of the seller. In the product data 24 for this seller, the associative search engine may record that this transaction occurred, in order that a toll for bringing a buyer and seller together may be extracted.

Moreover, user profile data may be maintained on end user device 12 and accessed by the associative search engine 18. The profile data contains, for example, end user preferences and previous search arguments which may be used to augment the individual search arguments received with the search request to select a best fit product advertisement. The associative search engine 18 retrieves and updates the profile data on the device 12, using appropriate messages exchanged over the communications link 14. For example, the search arguments from the current search session may be added to the user profile data.

Turning to the system illustrated in Figure 2, the advertising machine 30 (similar to the machine 10 in Figure 1) is integrated as part of the functionality embodied at an Internet access provider equipment site 32 which typically includes a telephone network terminating equipment 34, a router 36 through which TCP/IP packets are transmitted to and received from the Internet, and a server 38 which in general controls operation and couples data calls terminated by equipment 34 to router 36. The link 39 represents a data call established through the telephone

network to the access provider site 32.

The associative search engine 40 of machine 30 contains software algorithms or non-precise techniques, such as, fuzzy logic that correlates a search argument derived from the user and changes in the argument during a single session with the product database 42 whereby the most logical product from its available list may be selected. It then provides an advertisement insert that is added to the end user's search page in an attempt to offer the end user with the product that is closest to the need as determined by the associative search engine 40.

The access provider site 32, incorporating the advertising machine 30, is the sole channel available to the end user for accessing the Internet. When an end user carries out a search using the search engine 44 and clicks on (selects) a specific result or chooses an alternate information site address, the information is passed to the associative search engine 40 of that access provider 32.

Thus, not only the page with the search results but also the home page of the access provider can be updated with the appropriate advertisement which is selected by the associative search engine 40 from the product database 42.

In addition, since the data processing device 12 of the end user is connected through the access provider site 32 for all destinations within the Internet, a comprehensive user profile database 48 may be maintained by the



associative search engine 40, about the end users preferences and previous search arguments which may be used to augment the individual search argument received with the search request to select a best fit product advertisement.

5 In operation, for example, the process effected when an end user at the device 12 accesses the Internet through access provider site 32 is as follows.

1) The end users access the search engine 44, provided as a basic service by the access provider, and requests a search outlining the search argument.

10 2) The search engine 44 passes the argument and results of its search in database 46 to the associative search engine 40 which looks for a match in the product database 42 determining a logical product fit to the initial search argument. The associative search engine 40 creates a logical tree analysis of possible product fits, and selects or creates a probable best product advertisement for the advertisement window on the search results. In this case, the associative search engine 40  
15 also can utilize the maintained profile on the end user from past search sessions and/or historical data gathered on their buying habits, in the product selection processing. The associative search engine correlates the user's identity to data in the user profile database 48  
20 which it maintains and updates with data (e.g., search argument received with search request) from the current

search session.

3) The search engine 44 provides the end user with the results of the search against the given argument including the initial product advertisement from the associative search engine 40. The results and advertisement are displayed by end user device 12.

4) The end user refines his/her search by either clicking on a result, or refining their search through additional arguments or search criteria.

5) The associative search engine 40 and the database search engine 44 again work together in providing refined data as in (2) above. In the case of the end user clicking on (selecting) a specific search result the associative search engine 40 further refines its logical tree strategy and selects the probable best fit product and generates an advertisement.

6) The end user device 12 search results advertisement window is continually updated on each selection or refinement using a technology such as Java, providing the end user with a continually updated product advertisement that is considered to be most relevant (best fit) at that point in the search. In addition, failure of the end user to click on the advertisement is used as a criterion in the logical tree in providing the appropriate advertisement. The access provider's home page sent to the end user can also contain a specialized advertisement

constructed from the end user's profile data (e.g., searches and/or buying habits).

7) Once the end user is led to click on the advertisement, the associative search engine 40 of the selling machine 30 takes control and connects the potential buyer to the WWW site of the seller of the product, thereby exacting a toll for the transaction of bringing a buyer and seller together.

Those skilled in the art will recognize that various modifications and changes could be made to the invention without departing from the spirit and scope thereof. It should therefore be understood that the claims are not to be considered as being limited to the precise embodiments of the selling machine set forth above, in the absence of specific limitations directed to each embodiment.

**Claims:**

1 1. A method of providing advertisements to a user  
2 searching for desired information within a data network,  
3 comprising the steps of:

4 receiving, from the user, a search request  
5 including a search argument corresponding to the desired  
6 information;

7 searching, based upon the received search  
8 argument, a first database having data network related  
9 information to generate search results;

10 correlating the received search argument to a  
11 particular advertisement in a second database having  
12 advertisement related information; and

13 providing the search results together with the  
14 particular advertisement to the user.

1 2. A method as claimed in claim 1, wherein the step  
2 of correlating the received search argument to the  
3 particular advertisement including selecting the particular  
4 advertisement based on the received search argument and  
5 user profile data.

1 3. A method as claimed in claim 2, wherein the user  
2 profile data includes selections of the user from previous  
3 search arguments.



1           8.    A method as claimed in claim 7, wherein searching  
2   the database includes correlating, as a function of a fuzzy  
3   logic algorithm, the received search argument and user  
4   profile data to particular information in the database, and  
5   providing the particular information as the search results.

1           9.    A system for providing advertisements to a user  
2   searching for desired information within a data network,  
3   comprising:

4                means for receiving, from the user a search  
5   request including a search argument corresponding to the  
6   desired information;

7                means for searching, based upon the received  
8   search argument, a first database having data network  
9   related information to generate search results;

10               means for correlating the received search  
11   argument to a particular advertisement in a second database  
12   having advertisement related information; and

13               means for providing the search results together  
14   with the particular advertisement to the user.

1        10. A system for searching for desired information  
2 within a data network, comprising:

3            means for receiving, from a user, a search  
4 request including a search argument corresponding to the  
5 desired information;

6            means for searching, based upon the received  
7 search argument and user profile data, a database of  
8 information to generate a search result; and

9            means for providing the search results to the  
10 user.

11. A method of providing advertisements to a user searching for desired information within a data network, comprising the steps of:

receiving, at a server, a search request sent from a user, the search request including a search argument corresponding to the desired information;

searching, by the server computer based upon the received search argument, a first database to generate search results, the first database having data network related information and being contained on the server computer;

correlating the received search argument to a particular advertisement in a second database having advertisement related information, the second database contained on a client computer; and

providing the search results together with the particular advertisement to the user.

12. A method as claimed in claim 11, wherein the step of correlating the received search argument to the particular advertisement includes selecting the particular advertisement based on the received search argument and user profile data.



1           14. A method as claimed in claim 13, wherein the user  
2   profile data is based partially upon previous search  
3   results for the user.

1        16. A method as claimed in claim 11, wherein the step  
2 of providing the search results and the particular  
3 advertisement to the user includes displaying the search  
4 results as a page on a data processing device and the  
5 particular advertisement as an insert on the page.

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1        21. A method as claimed in claim 20, wherein the  
2 client computer is an access provider computer of a  
3 plurality of access provider computers, each of the  
4 plurality of access provider computers storing user profile  
5 data for a respective set of users.

1        22. A method as claimed in claim 20, wherein the  
2 client computer is an end user device respective to the  
3 user.

1        23. A method as claimed in claim 22, wherein the  
2 server computer is an access provider computer.

1        24. A method as claimed in claim 22, wherein the  
2 server computer is a database search engine.

1        25. A method as claimed in claim 20, wherein the step  
2 of processing includes performing a search for desired  
3 information within the data network, the search based  
4 partially upon the user profile data.

1        26. A method as claimed in claim 20, wherein the step  
2 of processing includes re-prioritizing search results based  
3 partially upon the user profile data.

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1        34. A method as claimed in claim 29, further  
2        comprising updating of the user profile data by the user.

1           35. A method as claimed in claim 29, wherein the user  
2 profile data includes a type of computer employed by the  
3 user.

1           36. A method for providing search results to a user  
2 that correspond to desired information within a data  
3 network, the method comprising the steps of:

4                 receiving, from the user, a search request that  
5 includes a search argument corresponding to the desired  
6 information;

7                 retrieving user profile data for the user;

8                 creating a modified search argument based upon  
9 the user profile data and the search argument;

10                searching, based upon the modified search  
11 argument, a database having data network related  
12 information to generate search results; and

13                providing the search results to the user.

1           37. A method as claimed in claim 36, further  
2 comprising:

3                 correlating the modified search argument to a  
4 particular advertisement in a second database having  
5 advertisement related information; and

6                 providing the particular advertisement together  
7 with the search results to the user.

1           38. A method as claimed in claim 36, further  
2 comprising:

3                 correlating the user profile data to a particular  
4 advertisement in a second database having advertisement  
5 related information; and

6                 providing the particular advertisement together  
7 with the search results to the user.

1           39. A method as claimed in claim 36, further  
2 comprising updating the user profile data based upon the  
3 search results.

1           40. A method as claimed in claim 36, wherein the user  
2 profile data is selected from the group consisting of  
3 social data, family data, political data, technological  
4 data, geographical data, environmental data and educational  
5 data.

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1 41. A method for providing search results to a user  
2 that correspond to desired information within a data  
3 network, the method comprising the steps of:

4 receiving, from the user, a search request that  
5 includes a search argument corresponding to the desired  
6 information;

7 retrieving user profile data for the user;

8 determining a particular database to search based  
9 upon the user profile data, the particular database having  
10 network related information relating to the user profile  
11 data;

12 searching, based upon the search argument, the  
13 particular database to generate search results; and

14 providing the search results to the user.

1 42. A method as claimed in claim 41, further  
2 comprising:

3 correlating the search argument to a particular  
4 advertisement in a second database having advertisement  
5 related information; and

6 providing the particular advertisement together  
7 with the search results to the user.



1           43. A method as claimed in claim 41, further  
2 comprising:

3                 correlating the user profile data to a particular  
4 advertisement in a second database having advertisement  
5 related information; and

6                 providing the particular advertisement together  
7 with the search results to the user.

1           44. A method as claimed in claim 41, further  
2 comprising updating the user profile data based upon the  
3 search results.

1           45. A method as claimed in claim 41, wherein the user  
2 profile data is selected from the group consisting of  
3 social data, family data, political data, technological  
4 data, geographical data, environmental data and educational  
5 data.

altering the environment of subsequent advertisements transmitted to the user via the user device based upon the environment of prior successful advertisements.

47. A method as claimed in claim 46, wherein the environment is presented within a browser.

48. A method as claimed in claim 46, wherein altering the environment of subsequent advertisements transmitted to the user includes incorporating common elements of prior successful advertisements.

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1           49. A method for presenting advertisements to a user  
2     accessing a data network via an end user device, the method  
3     comprising the steps of:

4                 receiving a plurality of advertisements at the  
5     end user device;

6                 presenting the plurality of advertisements to the  
7     user at the end user device, each of the plurality of  
8     advertisements presented in a particular respective  
9     environment;

10                for each of the plurality of advertisements  
11     presented to the user at the user device, recording the  
12     environment within which the advertisement was presented;

13                for each of the plurality of advertisements  
14     presented to the user at the user device, determining  
15     whether the advertisement was successful;

16                altering the environment of a subsequent  
17     advertisement received at the end use device based upon the  
18     environment of prior successful advertisements; and

19                presenting the subsequent advertisement to the  
20     user with an altered environment.

1           50. A method as claimed in claim 49, wherein the  
2     environment is presented within a browser.

1           51. A method as claimed in claim 49, wherein altering  
2 the environment of subsequent advertisements presented to  
3 the user includes incorporating common elements of prior  
4 successful advertisements.

1           52. A method as claimed in claim 49, further  
2 comprising providing feedback to a source of the  
3 advertisements regarding elements of prior successful  
4 advertisements.

1           53. A method for providing search results to a user  
2 that correspond to desired information within a data  
3 network, the method comprising the steps of:

4           .       receiving, from the user, a search request that  
5 includes a search argument corresponding to the desired  
6 information;

7                   retrieving user profile data for the user;

8                   searching, based upon the search argument, a  
9 database having data network related information to  
10 generate search results;

11                  creating an enhanced presentation environment for  
12 the user based upon the user profile data; and

13                  providing the search results to the user within  
14 the enhanced presentation environment.

1           54. A method as claimed in claim 53, wherein the  
2 enhanced presentation environment includes aural  
3 enhancements.

1           55. A method as claimed in claim 53, wherein the  
2 enhanced presentation environment includes textual  
3 enhancements.

1           56. A method as claimed in claim 53, wherein the  
2   enhanced presentation environment includes anecdotal  
3   enhancements.

1           57. A method as claimed in claim 53, further  
2 comprising modifying the user profile data based upon user  
3 feedback relating to the enhanced presentation environment.

1 58. A method for providing advertisements to a user  
2 searching for desired information within a data network,  
3 the method comprising the steps of:

4 receiving, from the user, a search request  
5 including a search argument corresponding to the desired  
6 information;

7 searching, based upon the received search  
8 argument, a first database having data network related  
9 information to generate search results;

10 correlating the received search argument to a  
11 particular advertisement in a second database having  
12 advertisement related information;

13 providing the search results together with the  
14 particular advertisement to the user;

15 determining whether the advertisement was  
16 successful; and

17 altering criteria for subsequent correlations of  
18 received search arguments to the second database.

1 59. A method as claimed in claim 58, wherein the step  
2 of correlating the received search argument to the  
3 particular advertisement includes selecting the particular  
4 advertisement based on the received search argument and  
5 user profile data.



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1           64. A method for providing advertisements to a user  
2 searching for desired information within a data network,  
3 the method comprising the steps of:

4           receiving, from the user, a search request  
5 including a search argument corresponding to the desired  
6 information;

7           searching, based upon the received search  
8 argument, a first database having data network related  
9 information to generate search results;

10          correlating the received search argument to a  
11 particular advertisement in a second database having  
12 advertisement related information;

13          providing the search results together with the  
14 particular advertisement to the user;

15          determining that the advertisement was  
16 successful; and

17          tracking a toll due by an associated seller.

1           65. A method as claimed in claim 64, wherein the  
2 environment is presented within a browser.

1           66. A method as claimed in claim 64, wherein the  
2 advertisement includes a link to the associated seller.



1           67. A method as claimed in claim 66, wherein the toll  
2 is tracked when the user implements the link to the  
3 associated seller.

1           68. A method as claimed in claim 66, wherein the toll  
2 is tracked when the user makes a purchase.

1           69. A method for providing advertisements to a user  
2 searching for desired information within a data network,  
3 the method comprising the steps of:

4                 receiving, from the user, a search request  
5 including a search argument corresponding to the desired  
6 information;

7                 searching, based upon the received search  
8 argument, a first database having data network related  
9 information to generate search results;

10                correlating the received search argument to a  
11 particular advertisement in a second database having  
12 advertisement related information;

13                providing the search results together with the  
14 particular advertisement to the user;

15                receiving feedback regarding whether the  
16 advertisement was successful; and

17                dynamically altering relational preferences for  
18 subsequent correlations of received search arguments to the  
19 second database.

1           70. A method as claimed in claim 69, wherein the step  
2 of correlating the received search argument to the  
3 particular advertisement includes selecting the particular  
4 advertisement based on the received search argument and  
5 user profile data.

1           71. A method as claimed in claim 70, wherein the user  
2 profile data includes selections of the user from previous  
3 search arguments.

1           72. A method as claimed in claim 71, wherein the user  
2 profile data includes selections of the user from previous  
3 search results.

1           73. A method as claimed in claim 72, wherein the user  
2 profile data includes user specified preferences.

1           74. A method as claimed in claim 69, wherein the step  
2 of providing the search results and the particular  
3 advertisement to the user includes displaying the search  
4 results as a page on a data processing device and the  
5 particular advertisement as an insert on the page.

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1           75. An advertising machine for providing  
 2 advertisements to a user searching for desired information  
 3 within a data network, the advertising machine comprising:  
 4           a server computer coupled to the data network  
 5 that receives a search request from the user, the search  
 6 request including a search argument corresponding to the  
 7 desired information;  
 8           a database search engine coupled to the server  
 9 computer that receives the search argument from the server  
 10 computer and searches a first database to generate search  
 11 results, the first database having data network related  
 12 information and being contained on the server computer;  
 13           an associative search engine coupled to the  
 14 server computer that correlates the received search  
 15 argument to a particular advertisement in a second database  
 16 having advertisement related information, the second  
 17 database contained on a client computer; and  
 18           the server computer providing the search results  
 19 together with the particular advertisement to the user.

1           76. The advertising machine of claim 75, wherein the  
 2 associative search engine selects the particular  
 3 advertisement based on the received search argument and  
 4 user profile data.

14           the server computer processing the user profile  
15   data in conjunction with the need.

1           81. The advertising machine of claim 80, wherein the  
2 user profile database comprises a distributed database  
3 having a plurality of database locations across the data  
4 network.

1           82. The advertising machine of claim 80, wherein the  
2 server computer comprises an access provider computer.

1           83. The advertising machine of claim 80, wherein the  
2 server computer comprises a database search engine.

1           84. The advertising machine of claim 83, wherein the  
2 server computer performs a search for desired information  
3 within the data network, the search based partially upon  
4 the user profile data.

1           85. The advertising machine of claim 84, wherein the  
2 server computer re-prioritizes search results based  
3 partially upon the user profile data.

1 86. A search engine for providing search results to  
2 a user that correspond to desired information within a data  
3 network, the search engine comprising:

4 a server computer coupled to the data network  
5 that receives, from the user, a search request that  
6 includes a search argument corresponding to the desired  
7 information;

8 a database search engine coupled to the server  
9 computer that searches, based upon the received search  
10 argument, a contextual database having data network related  
11 information to generate search results;

12 the server computer retrieves user profile data  
13 for the user;

14 the server computer re-prioritizes the search  
15 results based upon the user profile data to produce re-  
16 prioritized search results; and

17 the server computer provides the re-prioritized  
18 search results to the user.

1           87. The search engine of claim 86, wherein:  
 2           the server computer updates the user profile  
 3 data;  
 4           the server computer re-prioritizes the search  
 5 results again to produce again re-prioritized search  
 6 results; and  
 7           the server computer provides the again re-  
 8 prioritized search results to the user.

1           88. The search engine of claim 87, wherein the server  
 2 computer updates the user profile data based upon the  
 3 search argument.

1           89. The search engine of claim 87, wherein the server  
 2 computer updates the user profile data based upon the  
 3 search results.

1           90. The search engine of claim 87, wherein the user  
 2 updates the user profile data.

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1 91. A search engine for providing search results to  
2 a user that correspond to desired information within a data  
3 network, the search engine comprising:

4 a server computer coupled to the data network  
5 that receives, from the user, a search request that  
6 includes a search argument corresponding to the desired  
7 information;

8 the server computer retrieves user profile data  
9 for the user;

10 the server computer creates a modified search  
11 argument based upon the user profile data and the search  
12 argument;

13 a database search engine coupled to the server  
14 computer that searches, based upon the modified search  
15 argument, a database having data network related  
16 information to generate search results; and

17 the server provides the search results to the  
18 user.



1           92. The search engine of claim 91, further  
2 comprising:

3                 an associative search engine coupled to the  
4 server computer that correlates the modified search  
5 argument to a particular advertisement in a second database  
6 having advertisement related information; and

7                 the server computer provides the particular  
8 advertisement together with the search results to the user.

1           93. The search engine of claim 91, further  
2 comprising:

3                 an associative search engine coupled to the  
4 server computer that correlates the user profile data to a  
5 particular advertisement in a second database having  
6 advertisement related information; and

7                 the server computer provides the particular  
8 advertisement together with the search results to the user.

94. A search engine for providing search results to a user that correspond to desired information within a data network, the search engine comprising:

a server computer coupled to the data network that receives a search request from the user, the search request including a search argument corresponding to the desired information;

the server computer retrieves user profile data for the user;

an associative search engine coupled to the server computer that determines a particular database to search based upon the user profile data, the particular database having network related information relating to the user profile data;

a database search engine coupled to the server computer that searches, based upon the search argument, the particular database to generate search results; and

the server computer provides the search results to the user.

1           95. The search engine of claim 94, wherein:  
 2           the associative search engine further correlates  
 3 the search argument to a particular advertisement in a  
 4 second database having advertisement related information;  
 5 and  
 6           the server computer provides the particular  
 7 advertisement together with the search results to the user.

1           96. The search engine of claim 94, wherein:  
 2           the associative search engine further correlates  
 3 the user profile data to a particular advertisement in a  
 4 second database having advertisement related information;  
 5 and  
 6           the server computer providing the particular  
 7 advertisement together with the search results to the user.

1           97. An advertising machine coupled to a data network  
2 for providing advertisements to a user, the advertising  
3 machine comprising:

4           a server computer coupled to the data network  
5 that transmits a plurality of advertisements to the user  
6 via the data network and an end user device;

7           the server computer, for each of the plurality of  
8 advertisements presented to the user via the user device,  
9 records an environment within which the advertisement was  
10 presented;

11           the server computer, for each of the plurality of  
12 advertisements transmitted to the user via the user device,  
13 determines whether the advertisement was successful; and

14           the server computer altering the environment of  
15 subsequent advertisements transmitted to the user via the  
16 data network and the user device based upon the environment  
17 of prior successful advertisements.

1           98. The advertising machine of claim 97, wherein, in  
2 altering the environment of subsequent advertisements  
3 transmitted to the user, the server computer incorporates  
4 common elements of prior successful advertisements.

1        99. An end user device that couples to a data network  
2 and that presents advertisements to a user, the end user  
3 device comprising:

4            a data network interface that couples to the data  
5 network and receives a plurality of advertisements at the  
6 end user device;

7            a processor that couples to the data network  
8 interface;

9            a display coupled to the processor and the data  
10 network interface upon which the plurality of  
11 advertisements are presented to the user, each of the  
12 plurality of advertisements presented in a particular  
13 respective environment;

14           the processor, after each of the plurality of  
15 advertisements presented to the user at the user device,  
16 recording the environment within which the advertisement  
17 was presented;

18           the processor, for each of the plurality of  
19 advertisements presented to the user at the user device,  
20 determining whether the advertisement was successful;

21           the processor altering the environment of a  
22 subsequent advertisement based upon the environment of  
23 prior successful advertisements; and

24           the display presenting the subsequent  
25 advertisement to the user with an altered environment.

1           100. The end user device of claim 99, wherein the  
2 environment is presented within a browser.

1           101. The end user device of claim 99, wherein the  
2 processor alters the environment of subsequent  
3 advertisements presented to the user by incorporating  
4 common elements of prior successful advertisements.

1           102. The end user device of claim 99, wherein the  
2 processor provides feedback to a source of the  
3 advertisements via the data network interface regarding  
4 elements of prior successful advertisements.



1           106. The search engine of claim 103, wherein the  
2 enhanced presentation includes anecdotal enhancements.



1 107. An advertising machine coupled to a data network  
2 for providing advertisements to a user, the advertising  
3 machine comprising:

4 a server computer coupled to the data network  
5 that receives a search request from the user, the search  
6 request including a search argument corresponding to the  
7 desired information;

8 a database search engine coupled to the server  
9 computer that receives the search argument from the server  
10 computer and searches a first database to generate search  
11 results, the first database having data network related  
12 information and being contained on the server computer;

13 an associative search engine coupled to the  
14 server computer that correlates the received search  
15 argument to a particular advertisement in a second database  
16 having advertisement related information, the second  
17 database contained on a client computer;

18 the server computer providing the search results  
19 together with the particular advertisement to the user;

20 the server computer determining whether the  
21 advertisement was successful; and

22 the server computer altering criteria for  
23 subsequent correlations of received search arguments to the  
24 second database.

1        108. The advertising machine of claim 107, wherein the  
2        associative search engine correlates the received search  
3        argument to the particular advertisement based on the  
4        received search argument and user profile data.

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1 109. An advertising machine for providing  
2 advertisements to a user searching for desired information  
3 within a data network, the advertising machine comprising:

4 a server computer coupled to the data network  
5 that receives a search request from the user, the search  
6 request including a search argument corresponding to the  
7 desired information;

8 a database search engine coupled to the server  
9 computer that receives the search argument from the server  
10 computer and searches a first database to generate search  
11 results, the first database having data network related  
12 information and being contained on the server computer;

13 an associative search engine coupled to the  
14 server computer that correlates the received search  
15 argument to a particular advertisement in a second database  
16 having advertisement related information, the second  
17 database contained on a client computer;

18 the server computer providing the search results  
19 together with the particular advertisement to the user;

20 the server computer determining that the  
21 advertisement was successful; and

22 the server computer tracking a toll due by an  
23 associated seller.

1 110. The advertising machine of claim 109, wherein the  
2 server computer provides a link to the associated seller.

1           111. The advertising machine of claim 110, wherein the  
2 toll is tracked when the user implements the link to the  
3 associated seller.

1           112. The advertising machine of claim 109, wherein the  
2 toll is tracked when the user makes a purchase.

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1 113. An advertising machine for providing  
2 advertisements to a user searching for desired information  
3 within a data network, the advertising machine comprising:

4 a server computer coupled to the data network  
5 that receives a search request from the user, the search  
6 request including a search argument corresponding to the  
7 desired information;

8 a database search engine coupled to the server  
9 computer that receives the search argument from the server  
10 computer and searches a first database to generate search  
11 results, the first database having data network related  
12 information and being contained on the server computer;

13 an associative search engine coupled to the  
14 server computer that correlates the received search  
15 argument to a particular advertisement in a second database  
16 having advertisement related information, the second  
17 database contained on a client computer;

18 the server computer providing the search results  
19 together with the particular advertisement to the user;

20 the server computer receiving feedback regarding  
21 whether the advertisement was successful; and

22 the associative search engine dynamically  
23 altering relational preferences for subsequent correlations  
24 of received search arguments to the second database.

**Abstract of The Invention**

This invention relates to an advertisement machine which provides advertisements to a user searching for desired information within a data network. The machine receives, from a user, a search request including a search argument corresponding to the desired information and searches, based upon the received search argument, a first database having data network related information to generate search results. It also correlating the received search argument to a particular advertisement in a second database having advertisement related information. The search results together with the particular advertisement are provided by the machine to the user.

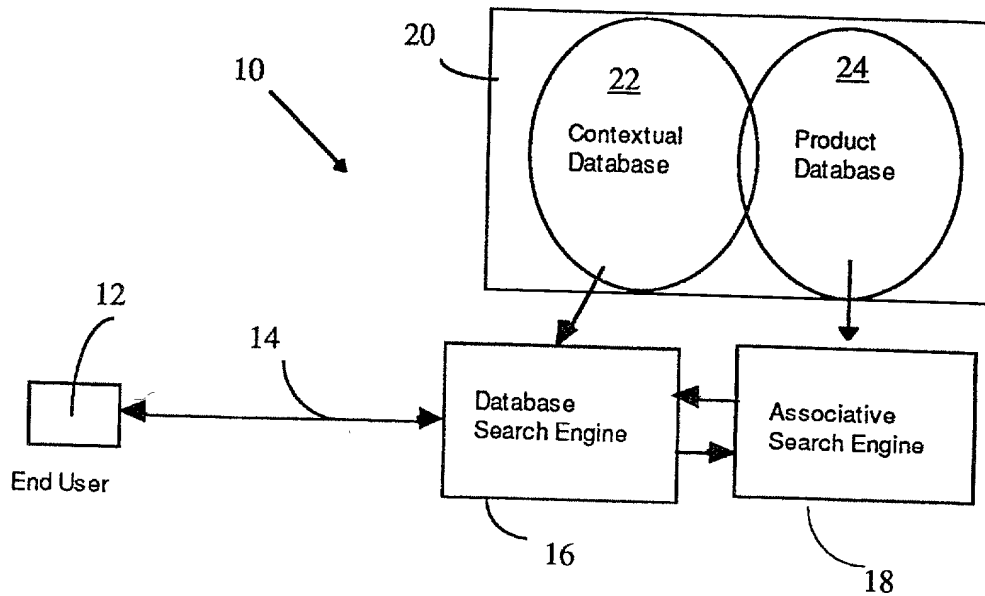


FIG. 1

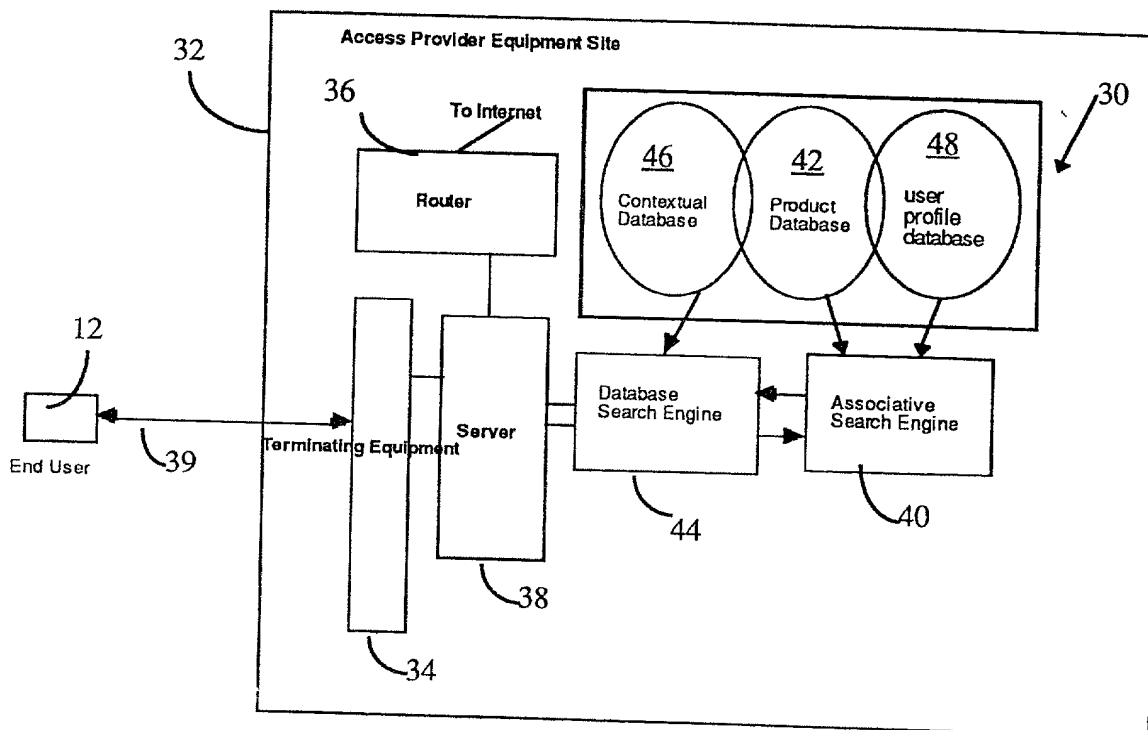


FIG. 2

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**DECLARATION FOR UTILITY OR  
DESIGN  
PATENT APPLICATION  
(37 CFR 1.63)**



Declaration  
Submitted  
with Initial  
Filing

OR



Declaration  
Submitted after initial  
Filing (surcharge  
(37 CFR 1.16(e))  
required)

**Attorney Docket Number**

HQ0048A

**First Named Inventor**

Richard Prescott Skillen

**COMPLETE IF KNOWN**

**Application Number**

**Filing Date**

**Group Art Unit**

**Examiner Name**

**As a below named inventor, I hereby declare that:**

My residence, post office address, and citizenship are as stated below next to my name.

I believe I am the original, first, and sole inventor (if only one name is listed below) or an original, first, and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled:

**AN ASSOCIATIVE SEARCH ENGINE**

the specification of which



is attached hereto  
OR



was filed on (MM/DD/YYYY) , as United States Application Number or PCT International  
Application Number and was amended on (MM/DD/YYYY) (if applicable).

I hereby state that I have reviewed and understand the contents of the above identified specification, including the claims, as amended by any amendment specifically referred to above.

I acknowledge the duty to disclose information which is material to patentability as defined in 37 CFR 1.56.

I hereby claim foreign priority benefits under 35 U.S.C. 119(a)-(d) or 365(b) of any foreign application(s) for patent or inventor's certificate, or 3659a) of any PCT international application which designated at least one country other than the United States of America, listed below and have also identified below, by checking the box, any foreign application for patent or inventor's certificate, or of any PCT international application having a filing date before that of the application on which priority is claimed.

Prior Foreign Application Number(s)	Country	Foreign Filing Date (MM/DD/YYYY)	Priority Not Claimed	Certified Copy Attached?	
				YES	NO
			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
			<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>



Additional foreign application numbers are listed on a supplemental priority data sheet PTO/SB/02B attached hereto:

I hereby claim the benefit under 35 U.S.C. 119(e) of any United States provisional application(s) listed below.

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## DECLARATION – Utility or Design Patent Application

I hereby claim the benefit under 35 U.S.C. 120 of any United States application(s), or 365(c) of any PCT international application designating the United States of America, listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States or PCT International application in the manner provided by the first paragraph of 35 U.S.C. 112, I acknowledge the duty to disclose information which is material to patentability as defined in 37 CFR 1.56 which became available between the filing date of the prior application and the national or PCT international filing date of this application

U.S. Parent Application or PCT Parent Number	Parent Filing Date (MM/DD/YYYY)	Parent Patent Number (if applicable)
08/798,747	02/13/97	

☐ Additional U.S. or PCT international application numbers are listed on a supplemental priority data sheet PTO/SB/02B attached hereto

As a named inventor, I hereby appoint the following registered practitioner(s) to prosecute this application and to transact all business in the Patent and Trademark Office connected therewith: ☒ Customer Number 22033 OR

☒ Registered practitioner(s) name/registration number listed below

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I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under 18 U.S.C. 1001 and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

Name of Sole or First Inventor: ☐ A petition has been filed for this unsigned inventor

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Inventor's Signature						Date	
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City	Mississauga	State	Ontario	Zip	L5H 2B3	Country	Canada

☒ Additional inventors are being named on the One supplemental Additional Inventor(s) sheet(s) PTO/SB/02A attached hereto.

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# DECLARATION

ADDITIONAL INVENTOR(S)  
Supplemental Sheet  
Page 1 of 1

Name of Additional Joint Inventor, if any:		<input type="checkbox"/> A petition has been filed for this unsigned inventor	
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Post Office Address			
City	Ontario	State	Canada
		Zip	K2S 1C5
		Country	Canada
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Inventor's Signature	Date		
Residence: City		State	
		Country	
Post Office Address			
Post Office Address			
City		State	
		Zip	
		Country	
Name of Additional Joint Inventor, if any:		<input type="checkbox"/> A petition has been filed for this unsigned inventor	
Given Name (first and middle [if any])		Family Name or Surname	
Inventor's Signature	Date		
Residence: City		State	
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		Country	
Name of Additional Joint Inventor, if any:		<input type="checkbox"/> A petition has been filed for this unsigned inventor	
Given Name (first and middle [if any])		Family Name or Surname	
Inventor's Signature	Date		
Residence: City		State	
		Country	
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Name of Additional Joint Inventor, if any:		<input type="checkbox"/> A petition has been filed for this unsigned inventor	
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Inventor's Signature	Date		
Residence: City		State	
		Country	
Post Office Address			
Post Office Address			
City		State	
		Zip	
		Country	
Name of Additional Joint Inventor, if any:		<input type="checkbox"/> A petition has been filed for this unsigned inventor	
Given Name (first and middle [if any])		Family Name or Surname	
Inventor's Signature	Date		
Residence: City		State	
		Country	
Post Office Address			
Post Office Address			
City		State	
		Zip	
		Country	

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